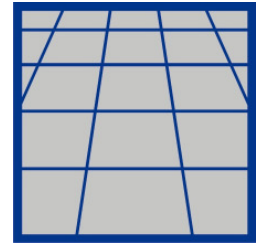


Temporary binders



LITHOPIX, OPTAPIX

Application

In bodies where highly plastic clays are used, which are prepared via the liquid phase and are broken down through the use of deflocculants and dispersants, in most cases sufficient green strength and dry modulus of rupture is achieved due to the inherent binding ability. The use of additional temporary binders is then usually not necessary.

In case the blend does not contain sufficient plastic materials an **increase in green strength and dry modulus of rupture**, as well as an **improvement in edge strength** can be achieved by addition of temporary binders.

Also, during plastic and semi-plastic forming via extrusion process, the use of temporary binders improves the green strength and dry modulus of rupture.

The reason for the critical observation of these strength factors which affect quality is twofold; on the one hand there is the **transportation of the tiles over long conveyor lines**, while on the other hand, **a certain minimum strength is necessary for glazing and decorating**.

As the body moisture content increases with the increasing number of subsequent applications, leading to a loss of strength, the use of temporary binders here can be advantageous.

Mode of action

The raw material base of the binders offered by Zschimmer & Schwarz for the tile sector are in general **polysaccharides** and **oligomers**.

Through addition of temporary binders **adhesive forces** develop between the ceramic particles. Contact with the binder can be achieved through a **coating of the ceramic particles** as a result of film forming properties or through **point contact**.

Given a **homogeneous distribution** of the binders within the body it is guaranteed that binders are uniformly available at all contact sites resulting in an **optimal temporary binding**.

Besides the desired mechanical characteristics, a further selection criterion is the **burn-off behaviour** of temporary binders.

Good oxidation characteristics, and hence **complete combustion** in the sintering process, together with **minimum emission values**, are essential properties; these are readily attainable under single oxidizing kiln conditions using temporary binders from the Zschimmer & Schwarz range.

If the addition of the binder takes place during preparation via the slip phase, it is possible that this can have an influence on the slip rheology. If necessary this must be re-adjusted.

